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**BETTER
SEEDS
for
FARMERS**

U.S. Department of Agriculture • Agricultural Marketing Service • August 1964

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August 1964

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Cover Page

As the traffic of seed in commercial channels has expanded over the years, the need has intensified for insuring that farmers and other seed users receive high-quality seed—properly labeled—for planting. This year marks 25 years of increased seed-buying protection, since the present Federal Seed Act was made law in 1939. In that year, the Act was strengthened over earlier seed legislation to offer greater safeguards to buyers of seed that is marketed across State lines. Enforcement of the Act's interstate provisions on labeling and minimum quality is accomplished through regular inspection and testing of seed by State seed agencies, followed by quality-testing in AMS laboratories when seed is believed in violation of the Act. (Cover photo won a blue ribbon at the national annual communications contest of the American Association of Agricultural College Editors.)

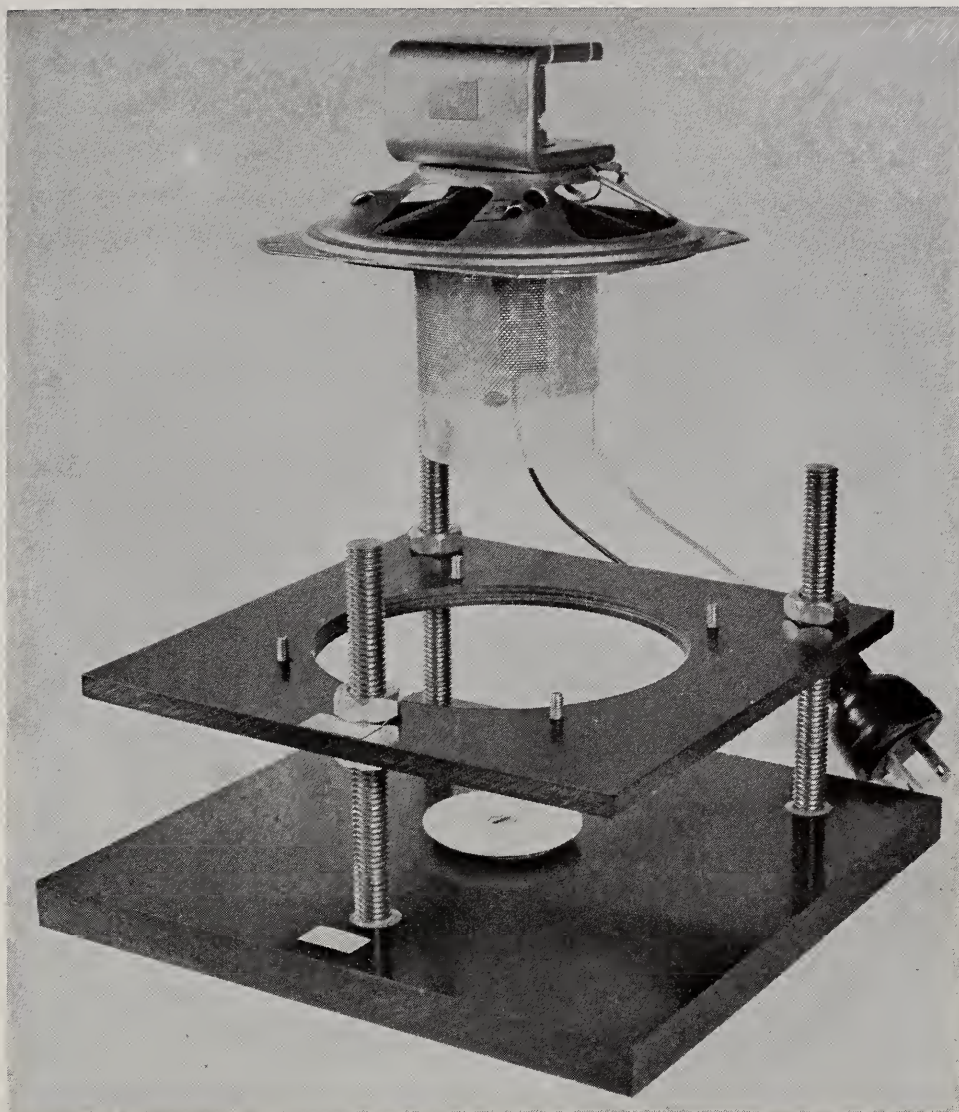
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New Pulsating Cage Tames Lively Insects



Editor's Note: Effective July 1, 1964, marketing research was transferred from the Agricultural Marketing Service to the Agricultural Research Service.

New pulsating cage, partly disassembled, is above black supporting unit and shakes at its sides and top. Unable to get to top of cage, insects remain on insecticide-coated floor, which is the only part of the cage that doesn't vibrate.

FUTURE insecticides for the garden, farm, home and for use in storage facilities may be easier to test for their effectiveness against a wider variety of insects if results of tests with cigarette beetles are as successful with other kinds of insects.

This long-sought improvement in testing insecticides is possible with a new kind of cage that keeps uncooperative insects from climbing or flying to the top of their cages. The pulsating cage, as it's called, was developed by marketing researchers in the U.S. Department of Agriculture in cooperation with a commercial tobacco firm.

Under present testing methods, lively insects do not make good test subjects for new insecticides. Under ideal conditions, test insects remain at the site, usually the floor of their cage, where an insecticide has been applied

Because these "ideal" insects remain relatively stationary, the effects of the insecticide's fumes, residue, and repellent action can be readily determined.

However, many of the most important kinds of insects have a natural tendency to fly or crawl to the top of their cage, even when there is no insecticide on the floor. With these insects, which include some of the more destructive species, the separate effects of a new insecticide can be hard to measure.

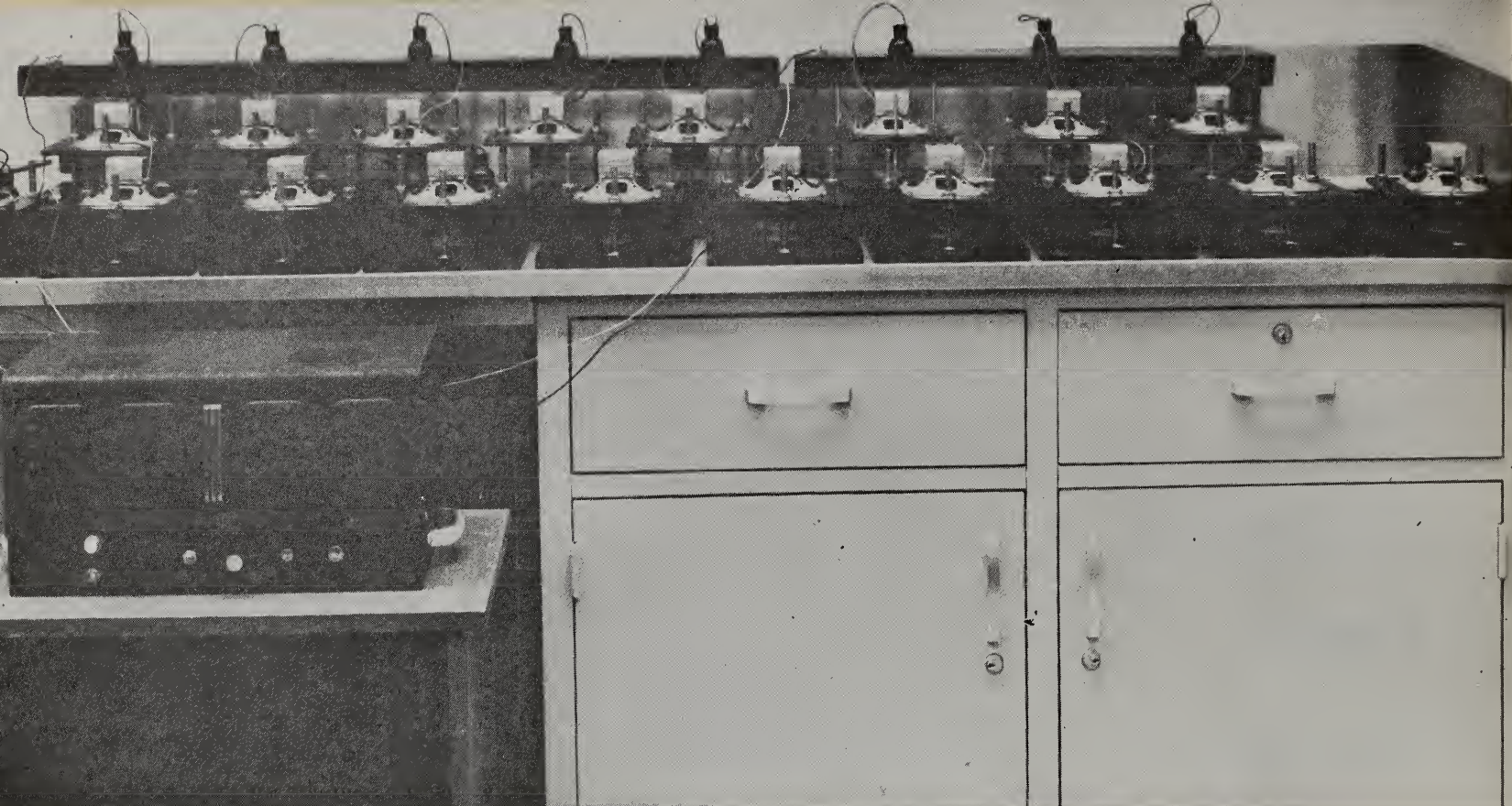
A pulsating cage can outmaneuver these more lively insects so that they can be used in tests as successfully as less active insects. When insects in a pulsating cage attempt to fly or crawl to the top of the cage they back off from the vibrating sides of the cage. After a number of futile efforts to reach the top of the cage, the insects

give up and remain on the floor, where a test insecticide has been applied.

The top and upper sides of these cylindrical cages are made of wire screen. The lower sides of the cages are enclosed by a thin-walled plastic sleeve. Test insecticides are applied to a disk on the floor of the cage. The disk is the only part of the cage that does not vibrate and is therefore the insects' only refuge.

The key feature of the new cage is a diaphragm from an ordinary radio speaker. The 4-inch speaker unit emits sound vibrations from a nearby transmitter that can serve up to 18 pulsating units at the same time. The speaker unit is fastened to the cage, making the top and sides of the cage vibrate, shaking off any insects.

Even the cage's dimensions are calculated to frustrate the tendency of



Eighteen pulsating cages beneath radio speakers on counter are shaken at their sides and tops by sound waves from the diaphragm of radio speaker. Wires lead to the transmitter on the stool at left. The cage is easy to construct from readily available parts. Although both top and bottom of experimental model are supported on Bakelite sheets, as photo on page 3 shows, equally suitable supporting pieces could be made from other materials. Diaphragm of radio speaker is in center of top piece; a screw fastens screened top and sides of cage to speaker unit. A plastic sleeve is inserted in screen forming lower portion of cage. A plastic disk, mounted on another disk, forms floor of cage. Upper section of cage is supported over floor by three bolts that fasten to upper Bakelite sheet.

some species of insect to fly to the top of the cage. The cage's 1 $\frac{3}{4}$ inch diameter requires a steeper rate of ascent than many of these insects can make. Instead of reaching the top, the insects fly into the plastic sides of the cage and slide to the floor. Any insects that did reach the top would be shaken off as soon as they landed.

The pulsating cage was developed under the direction of Dana P. Childs at the Stored-Product Insects Laboratory in Richmond, Va. Researchers tested the new cage with adult cigarette beetles, one of the more lively species of insects. When the beetles were first placed in the cage, they followed their characteristic habit, and clung upside down to the top of the cage.

It took only 2 minutes for the vibration to shake the insects to the floor. However, beetles that had never been in a pulsating cage before kept trying, in vain, to reach the top of the cage. Within 20 minutes, all had given up

and were standing in groups on the floor of the cage.

The beetles were not ready to accept their new behavior pattern as a permanent way of life, however. As soon as the transmitter was turned off, the insects headed directly for the top of the cage, and within minutes all were resting upside down at the top of the cage.

Use of the pulsating cage caused no harm to the insects that would affect the test results. When the insects were examined 21 days after testing, they appeared to be as healthy as insects not used in the tests. Some of the beetles had been held in the pulsating cage for 24 hours, others for shorter periods.

Although the tests were limited to cigarette beetles, which destroy food as well as tobacco, similar cages may be equally successful with other lively species of insects. Technical details of the tests are given in a forthcoming issue of the *Journal of Economic Entomology*.

Beef Grade Changes Proposed

SECRETARY of Agriculture Orville L. Freeman, on July 2, proposed a revision of U.S. grade standards for beef, in line with recent recommendations of various segments of the livestock and meat industry.

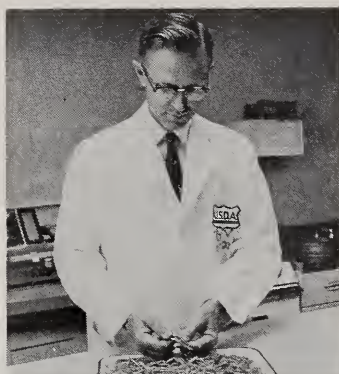
The major change proposed is a deemphasis of maturity as a factor in grading beef from young cattle.

USDA said the proposal was based on a detailed review of the most recent research available on beef quality. The proposed changes in marbling-maturity requirements should increase the uniformity of eating quality within each grade and further increase the usefulness of USDA grades to consumers. The change is expected to favor the marketing of cattle at lighter weights.

Copies of the proposal may be obtained from the AMS Livestock Division. Interested persons are invited to submit written comments, in duplicate to the Hearing Clerk, USDA, Washington, D.C. 20250, by October 7, 1964. Comments will be available for public inspection in the Hearing Clerk's office.

A Day With A Fruit & Vegetable Inspector

By Dennis T. Avery



Inspector Wegener

*A*merican consumers today are getting more food of better quality than ever before. Part of the reason is that more and more food processors are requesting official USDA inspections of their products, learning as a result much more about factors that determine quality food. Last year, USDA inspectors examined 2½ billion pounds of frozen fruits and vegetables. Here's a first-hand account of what they looked for, how they determined quality.

It was a warm, windy day outside—but as our lift truck moved through double doors into the high-ceilinged gloom of the frozen food warehouse, I was enclosed by a deep chill. The lift truck operator told me the temperature was “only about 4 or 5 below zero,” but I could feel the damp coldness biting, even through my heavy clothing.

John Wegener was making a routine lot inspection of several hundred cases of frozen green beans. He is an inspector for the Processed Fruit and Vegetable Inspection Service of the U.S. Department of Agriculture's Agricultural Marketing Service.

The lift truck operator would move the palletized cases around so John could check the condition of the lot and select a representative sample.

I was along to see how USDA conducted an official quality inspection which was typical of the more than 100,000 inspections of processed fruits and vegetables made each year at industry request.

The green beans were stacked four layers high on pallets—and the pallets themselves stacked to form towers 16 and 20 cases high. The lift truck began unstacking the pallets, pivoting to spread them out on the frost-covered floor.

On big lots that have to be moved by hand, the inspector may have to spend a considerable period of time in the

freezer to get a truly representative sample. My hands and feet were already glad this one wouldn't take long.

John had his gloves off now, opening cases and taking out the 2½-pound cartons of beans that would make up the sample. His statistical tables told him he needed at least 13 cartons from as many cases. As he removed each box he checked the general condition of the case and noted its code number.

My own ball point pen had quit writing. Too cold. My watch told me we had been in the freezer ten minutes.

Another 20 minutes and John had his samples. The lift truck bumped its way back through the double doors, and the wind welcomed us with its warmth.

On the way back to the inspection lab, John told me that frozen foods make up a major portion of the inspection service's work. They inspect 2.5 billion pounds a year—which is equivalent of about 75 percent of the total frozen fruits and vegetables marketed.

John said he would issue an official inspection certificate on the beans, stating their quality and condition. This would be mailed to the owner, who had requested the inspection, along with a bill covering the fee for making the inspection.

Inspection certificates are used throughout the food industry as sales tools, to show that merchandise meets specifications, to establish the loan value of products, and to help settle damage claims incurred in transit or storage.

Back in the inspection laboratory, John first weighed each package of beans on a scale accurate to 1/20th of an ounce—to make sure they weighed the 2½ pounds declared on the label.

Then he opened each carton in turn, placing the contents on a big brass screen. He checked the frozen beans for large ice crystals that might indicate they had been defrosted and re-

frozen; then thawed them under a stream of cold water.

“They look like pretty good beans,” John remarked as he surveyed them lying in bright green profusion on white enamel trays under the lab's special “daylight” lighting. “We look primarily for color, defects, and maturity, and degree of tenderness.”

He showed me the printed U.S. Standards for Frozen Green Beans—the “yardstick” for measuring quality in the industry.

He also took out a 28-page set of inspectors' instructions on frozen beans and laid both where he could refer to them easily.

John picked out one tray of beans. “These have very good color. They're bright, practically uniform, and fresh-looking, typical of young tender beans.” Referring to the grade standard, he reported, “They rate 19 points (next to the top score) on color.”

He sorted out defects—looking for blemished beans, pieces of stems and vines, discolored cut surfaces, any other defects that would lower the eating quality or appearance. There weren't many.

“The standard says 38 points for defects.”

He pointed out that the small seeds and the full-fleshed pods indicated the beans were young.

“These look good. If they don't have tough strings, they'll score in the Grade A range.”

He put some of them into a pan of water, and put it on the stove to cook.

The final test, as always, is in the eating. John chewed a mouthful of beans, thoughtfully, then offered me some. They were tender and had a fresh flavor, but I wished it was crickets to add some salt.

“Thirty-nine points out of forty for maturity, no tough strings, and no off flavor. Grade A beans,” was John's final evaluation of the tray.

He repeated the inspection process for the other sample trays, averaged the score for the lot, and sat down to complete the Certificate of Quality and Condition: “Frozen green beans, sliced length-wise. U.S. Grade A. Average score, 94 points. This certificate covers 750 cases, 12 2½ pound cartons. Product packed in paperboard cartons with plain waxed paper over-wrap with label inserted and cased in domestic corrugated cases. Signature of Inspector: John B. Wegener.”

(The author is a writer-editor of the Marketing Information Division, AMS.)

International Food Standards

By Nathan Koenig



NEVER before has there been the multitude of bodies concerned with the promulgation of standards in the food field that now function in different parts of the world.

In 1962 the Food and Agriculture Organization of the United Nations listed 135 organizations other than governments as working on international food standards and related problems. FAO pointed out this was not a complete list. The standards work of these 135 bodies alone ranges through the entire food field and includes every aspect from standards governing sanitation, sampling, analysis, additives and pesticides residues to standards of iden-

Above, the U.S. delegate to the Codex Alimentarius Commission, Nathan Koenig (front row, second from left, surrounded by industry and government advisor members of the delegation. This was the Commission's first work session, held in Rome last year. Below, the FAO/WHO Food Standards Conference in Geneva, 1962, at which 44 nations established the Commission.



tity and quality.

In recent years the development of trading areas throughout the world, improved transportation facilities, and new food technology have all accelerated the pace of international trade in food. This brought about a new urgency for the establishment of standards that would facilitate international trading and also provide essential safeguards for protecting consumer health and insuring fair practices in food trade.

Many organizations responded to meet the expanded and intensified need for various food standards. As a result of this great build-up, much of the work carried on is duplicatory, confusing, and conflicting. The need to simplify and harmonize international food standards work on a broad basis soon became apparent and there was a growing demand for corrective action.

The Food and Agriculture Organization and the World Health Organization assumed leadership by establishing a joint program on food standards. This program is being carried out through the Codex Alimentarius Commission, established in Geneva in October 1962 with 44 countries and 24 international organizations represented. The Commission is now in its first year of operation, having held its first work session last June-July at FAO headquarters in Rome. The work of the Commission is currently financed by contributions to a trust fund.

The basic purpose of the Commission is to simplify and harmonize international food standards work by allocating priorities in the development of standards, by coordinating and supplementing the work of other bodies in this field, and by providing for finalization of draft standards at the government level and their publication in a consolidated Codex Alimentarius.

Through discussion at the Rome meeting, the principle was firmly established that the food standards work of the Codex Alimentarius Commission should be on an international basis and only in those instances where no other alternative was available (primarily in the case of highly perishable commodities) would standards be on a regional basis. And then recognition would be given to equivalency of products coming from outside the region.

The Commission also reviewed the Trust Fund method of financing the food standards program and recommended that the costs involved should be covered by the regular FAO and WHO budgets as soon as the different budgetary procedures of the two organ-

izations would make this step practicable, which is an estimated two years.

To get its program underway, the Commission allocated preparatory work on draft standards, largely in accordance with the list of priorities previously established by the Joint FAO/WHO conference held in Geneva in 1962. The assignments were made either to ad hoc Expert Committees established by the Commission or to existing outside specialist bodies.

As a result, real progress is being made toward preparation of standards for the following: fish and fishery products; oils and fats, including margarine and olive oil; all nutritional sweeteners; fruit juices; coca products and chocolate; food additives; food hygiene; processed fruits and vegetables; and methods of sampling. Additional work is underway in other areas.

The most extensive work to date has been on a code of principles and standards for milk and milk products. This work started in 1958 at the first meeting of the Committee of Government Experts, and its success over the years played an important role in the decision to organize the FAO/WHO Codex Alimentarius Commission.

Standards of identity have been developed to date for butter, butteroil, evaporated milk, sweetened condensed milk, and dry milks. Developed also was a general standard for cheese which will serve as a framework for standards for individual varieties of cheese. Five standard methods for testing and sampling have been developed. The number of countries which have accepted the standards is as follows: dry milks, 52; butter, 25; butteroil, 27; evaporated milk, 23; sweetened condensed milk, 24; general standard for cheese, 17.

The U.S. experience in developing standards has played a big part in the formulation of international standards for dry whole and non-fat dry milk. An earlier account of this work was carried in the October 1961 issue of *Agricultural Marketing*.

The United States is playing important roles in other areas also. It serves as chairman of the Expert Committee on Food Hygiene, whose first session was held last May in Washington. This group is considering the development of draft hygiene standards for foods other than meat and milk and milk products. The U.S. also chairs the worldwide Expert Committee on Processed Fruits and Vegetables which also met in May. In addition, the U.S. is preparing, at the Commission's request, a background study on stand-

ards for poultry.

The Second Session of the Codex Alimentarius Commission will be held in Geneva, September 28-October 7, 1964. This session will be largely concerned with the detailed consideration in second reading of the draft standards on which comments have been received from governments. It will also be concerned with the reports on work accomplished by Expert Committees and other specialist groups to which the Commission last year made assignments for promulgating standards and developing drafts of various background papers.

It is expected that as a result of the Commission meeting, certain draft standards will be ready for submission to governments for consideration and comment. This is in accordance with the rules of procedure and enables all participating governments to express their views on proposed standards which may subsequently be accepted by the Commission for inclusion in the Codex Alimentarius. The prior submission of the draft text of any standard to all members of the Commission applies both to international standards as well as to any standard primarily intended for a region or group of countries. This is an important safeguard for the interest of all concerned, either directly or indirectly.

The Codex Alimentarius Commission represents a new and vital influence in the realm of international food standards. A general observation of basic importance is that a food standard, when appropriately supported and backstopped by practical standards for sampling, analysis, and other requisites, should aim at ensuring the market of a sound, wholesome product, correctly labeled and presented. It should not be intended to affect consumer preference, but should aim at ensuring that the consumer can know what he is buying.

These purposes served by a standard are especially important in providing buyers and sellers with a common language for local and long distance trading and a yardstick for determining value. Otherwise, the use of widely varying standards, particularly among countries, leads to misunderstandings and confusion in international trade, undue restrictions in trade, and added marketing costs.

(The author, chairman of the U.S. FAO Interagency Subcommittee on Codex Alimentarius, is Special Assistant to the Administrator, Agricultural Marketing Service, USDA.)

Standards

By Dale E. May

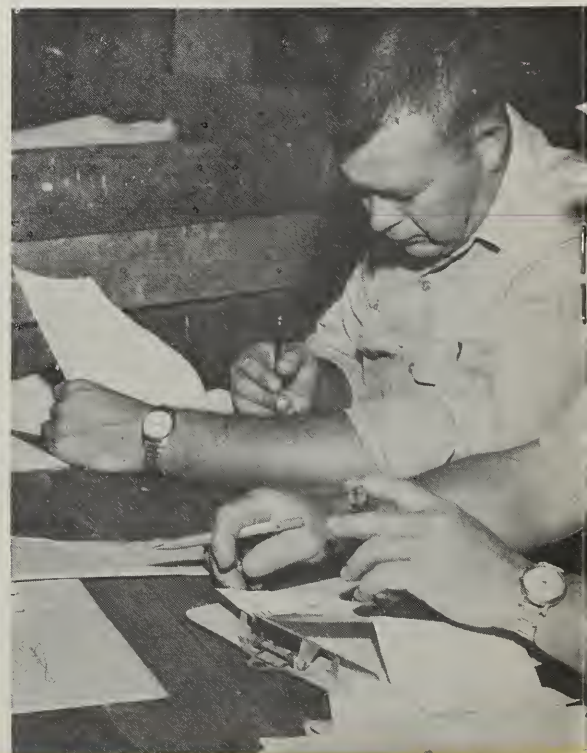
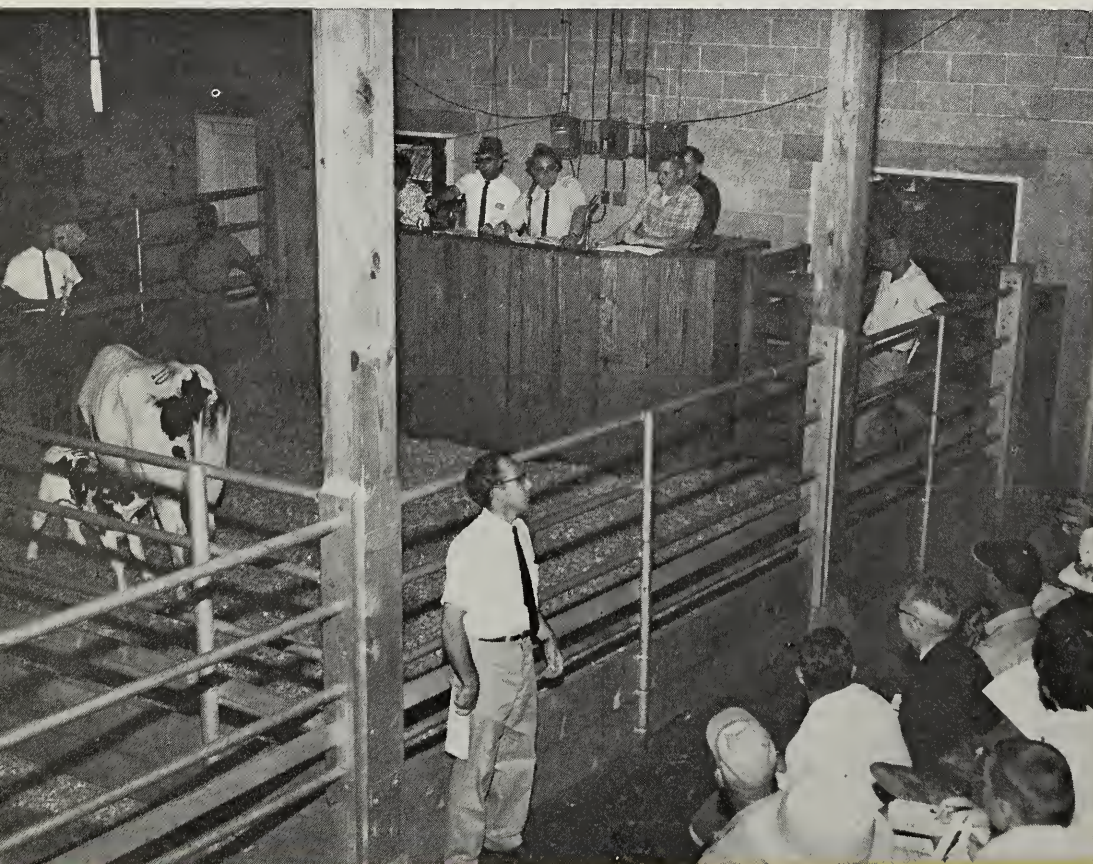
IN THE green, rolling hills of the Virginia farming community of Culpeper, a sale of dairy cattle was in progress—the first of its kind anywhere.

The sale auctioneer sounded his tune, while an enthusiastic crowd listened. Prospective buyers among the crowd signaled their bids, as each of 189 heifers was led around the sale ring of the livestock auction building. These animals had been specially selected from area farms by a committee of dairy-men.

How did this sale differ from other dairy cattle sales? The bred Holstein heifers, to serve as future herd replacement stock, were being sold according to an entirely new grading system—using standards developed by the Virginia Department of Agriculture in cooperation with marketing and research specialists of the U.S. Department of Agriculture. Development of the Standards was made possible by the Matching Funds Program of USDA's Agricultural Marketing Service, in which Federal funds are added to State funds to develop programs of marketing improvement.

Under this grading system—given its first practical test in the Culpeper sale this past June—a numerical index is assigned to each heifer. This index, of which prospective buyers are informed, attempts to predict the heifer's capacity to produce in any herd in which she may be placed.

Under this new grading system, which is an attempt to predict the capacity of heifers to produce in any herd, heifers are graded (above) for conformation before sale. The graders are J. E. Poor (left) and David Walker of the Virginia Department of Agriculture's Division of Markets. They consider each heifer for closeness to ideal dairy type. Trial conformation grades were Choice (with score ranging from 15 to 17), Select (12 to 14), Desirable (9 to 11), Fair (below 9), and Common (cull). Below, at left, "spotter" in foreground takes bids of buyers at dairy heifer sale. The animal, consigned for sale as a bred heifer, calved just prior to sale. In center photo below, the auction firm's manager, at left, accepts records and health papers from farmer who has consigned heifers to be sold at the Culpeper, Va., auction. Records include background production data on each heifer. Health papers show that animals have had clean tests for brucellosis and tuberculosis within a certain period before sale. Next page, prospective buyer Russell H. Inskeep and his son, "Rusty," look over bred holstein heifers to be auctioned as herd replacements.



s for Dairy Herd Replacements

After about a year, when the heifers sold have had enough time to demonstrate their milk-producing ability, Virginia marketing specialists will contact the animals' buyers for production records. Comparing these records with the indexes previously assigned will represent the final test of how successfully the "pilot" standards worked.

But at this point the Virginia specialists are quite confident that the indexes can give a reliable measure of predictability and dependability in Virginia heifers as replacement stock.

Essentially, the index is a combination of two considerations—production records and body conformation of the heifer itself. The simplified formula is *total index = production index + conformation index*.

Production records include those of the heifer's dam and the dam's herd-mates, as well as those of the sire's daughters and their herd-mates. By comparing an animal with her herd-mates, most of the environmental factors involved in her production record can be eliminated. Eighty percent of the emphasis in determining the total index is given to production records. A heifer expected to produce the herd average of the herd in which she will be placed is assigned a production index of 80. Four points are added to or subtracted from this index for each 125 pounds of milk above or below the average for the herd. For instance, a production score of 250 (twice 125)—the amount of milk produced above

herd average, as revealed by production records—would give the heifer a production index of 8 points above the average index of 80, or 88.

Conformation is given the remaining 20 percent of the emphasis. In grading each heifer on conformation before the sale, graders considered her general appearance; head and neck; chest and shoulders; front legs; rib, back, and loin; rump and rear quarters; rear legs; and mammary system for closeness to ideal dairy type. "Pilot" conformation grades were Choice, Select, Desirable, Fair, or Common (cull), with a conformation score range of 9 (low Desirable) to 17 (high Choice) for the top three grades. A heifer with an average conformation (middle Select, with a score of 13) is assigned a conformation index of 20. This conformation index, which ranges from 12 to 28, is used instead of the conformation score to provide a workable total index.

The heifer with an average production and conformation score will therefore have a total index of 100.

Virginia marketing specialists are hopeful that these standards may someday be widely used, to permit distant buyers to purchase Virginia heifers by telephone or letter. For instance, a buyer in Florida might specify over the telephone that he wants 20 heifers with an index ranging from 125 to 150, and with a certain average weight and freshening date. And to be assured of quality heifers, a buyer would likely be

willing to pay higher prices to producers. An initial analysis of the Culpeper sale indicated a positive relationship between the indexes of the heifers sold and the prices paid for them.

The Matching Funds Program, under which this grading system was initiated, is a Federal-State, self-help marketing service program aimed at improving the marketing of agricultural products at the local level—with Federal funds serving as a catalyst to spur such local activity.

These programs attempt to put marketing research into practice. Once these experimental programs are found to be successful, they are then turned over to other industry, State, or Federal agencies for operation.

The Virginia dairy heifer program is also an experimental one. This program will attempt to determine the best means of placing meaningful grades on dairy herd replacement stock. After all the work has been evaluated, the industry, with official agencies, will decide on the best methods. The Virginia program and similar ones may serve as a basis for establishing nationally uniform replacement standards.

But the heifer sale in Culpeper will remain as a landmark in the field of developing dairy herd replacement standards.

(The author is with the Marketing Information Division of the Agricultural Marketing Service, USDA.)



A New Corn-Drying Process—

DRYERATION

DAMAGE caused by improper drying methods could be less of a problem with the 1964 corn crop than with the earlier crops, thanks to a new corn-drying process called dryeration.

The name is a combination of two words, drying and aeration, both of which are used in the new process. The dryeration process was developed by agricultural engineer George H. Foster of the U.S. Department of Agriculture and the Agricultural Experiment Station of Purdue University.

Under present corn-drying methods, artificial drying sometimes damages the corn. If the corn dries too fast, or at an excessive temperature—or both—it may be puffed, browned, or parched. It may shatter easily and be downgraded on the commercial market. When fed to livestock, corn that is “over-dried” results in lower gains in weight, in the case of pigs, than corn that has been dried at a lower temperature.

In the dryeration method, a conventional batch or continuous-flow dryer is used without cooling the corn in the

dryer. When the moisture content of the corn reaches a level of 16 to 18 percent the corn is transferred immediately to the dryeration bin before storage. Here it is held for a few hours while it steams or tempers itself. A fan at the bottom of the bin is then turned on, forcing air slowly upward through the corn, to cool it.

The steaming and slow cooling are what gives dryeration its advantage over conventional drying in preventing damage to the corn. An air temperature of 200° F. or higher can be safely used.

Where adequate grain-handling equipment is available, the extra handling required to move the corn into and out of the dryeration bin would not be too much of a problem.

After air has been blown through the corn for about 12 hours the moisture content will read about 14 to 15½ percent, and the corn will be ready to move from the dryeration bin into storage bins. If the dryeration process were conducted right in the storage bin there

would be a problem with moisture condensation on the walls of the bin. Any corn in the dryeration bin that was wet by condensation running off the walls or dripping from the roof was sufficiently mixed with dry corn when it was moved, so that no storage problem resulted.

The use of a dryeration bin has another, equally important advantage. The bin eliminates the need for reserving part of the holding capacity of a continuous-flow dryer for cooling. The cooling period in batch drying is eliminated altogether. The elimination of cooling in the dryers in some cases nearly doubles the drying capacity of the dryers.

Cooled corn would be moved into storage bins every morning before the day's drying started. In a 24-hour operation, two dryeration bins would be needed if cooling were done on a batch basis. A variation in the size of the bin, fan, and special loading equipment would permit continuous movement, so that as corn on the bottom cooled

it could be moved into storage while heated corn from the dryer was being added at the top of the dryeration bin.

Tests are still being made with the dryeration method. In tests so far, the number of internal, or stress, cracks was reduced 50 percent by the dryeration process, as compared with conventional artificial drying methods. Stress cracks contribute to breakage of corn during handling.

Earlier research shows that artificially dried corn is two to three times more susceptible to internal cracks than corn that is not artificially dried. The dryeration method substantially reduces the difference in quality between corn dried by natural or artificial methods.

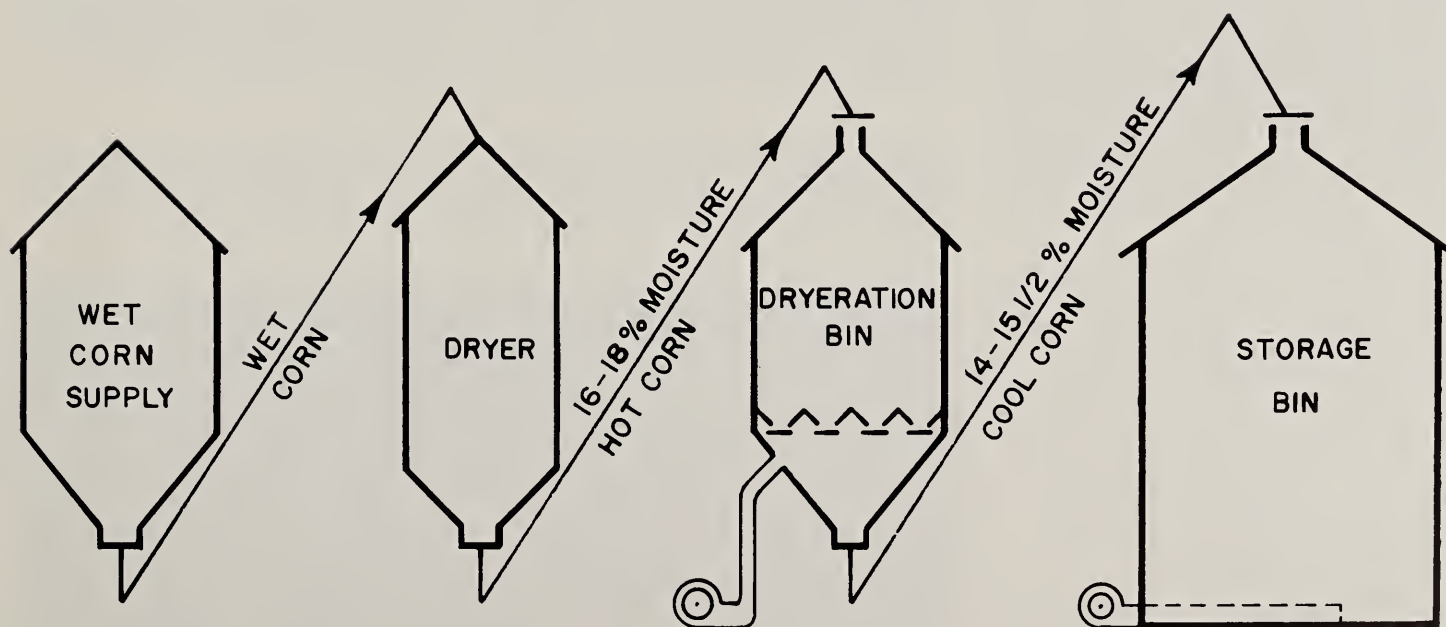
Examination of corn for stress cracks, visible when kernels are held against a strong light, comparable to candling an egg, is a good method for predicting future deterioration in quality. Examination for stress cracks would be a quicker way than the germination tests now used to determine the suitability of corn for milling. Germination tests have been relied on because corn that will germinate would not have been dried at too high a temperature for good milling quality.

Judging corn on the basis of stress cracks and the use of dryeration may become important procedures in the future as the use of corn for milled products increases. In the past 5 years,

an increase of 27 million bushels of corn has been used in the manufacture of corn oil, starch, sirup, sugar, and other wet-mill products. Altogether, about 700 million bushels of corn, excluding that used for animal feed, must meet standards for milling quality.

Details of preliminary test results with dryeration are given in AMS-532, "Dryeration—A Corn Drying Process: Progress Report." The study on stress cracks is described in Marketing Research Report No. 631, "Stress Cracks and Breakage in Artificially Dried Corn." Copies of these reports may be obtained from the Information Division, Agricultural Research Service, USDA, Washington, D.C. 20250.

THE DRYERATION PROCESS (BATCH OR CONTINUOUS DRYER)





The "Long Island Duckling" Story

By George H. Goldsborough

ALONG the shores of the eastern end of Long Island lives a colony of ducks.

These birds form the foundation of a \$30 million industry which has recently "pulled itself up by the bootstraps"—with the help of Federal and State cooperation.

This is the Long Island Duckling Story . . . how nine immigrant ducklings became a 7,500,000 duckling-per-year industry . . . how a one-time "speciality item" became a regular menu item in many homes . . . how successful marketing improvement work saved a valuable industry.

It's also the story of a unique form of cooperation between the U. S. Department of Agriculture and the New York Department of Agriculture and Markets—a form of cooperation told here to point up similar work in 43 States under the Matching Fund Program.

Long Island has long been known for its ducks. In the early 1800's William Cobbett (an English exile to New Hempstead) described the Island's "fine and delicate" ducks. But the present duckling industry began in 1873 when the first Peking ducks were imported by a New York merchant named McGrath, who had seen a white duck near Peking, China, which was so large he mistook it for a goose.

McGrath (so the story goes) bought some duck eggs, hatched 15 ducklings, and shipped them to the States through a Connecticut merchant, James Palmer, who was to receive nearly half of the ducks in payment.

Four months later, nine surviving ducks landed in New York. McGrath's family promptly ate his five ducks, but Palmer took four to Connecticut for breeding. These ducks are the ancestors

of today's Long Island duckling.

Today, the Long Island duckling industry serves most of Canada and the United States, and ships many ducklings to overseas countries. With 90 percent of the birds marketed frozen, the duckling is now available year-round, and in any part of the world.

The duckling business is important locally in Long Island. Not only is it a \$30 million business (figuring the value of farms, packers, feed dealers and other marketers), but it also employs more than 1,000 persons locally, furnishing the community with \$3,500,000 annually in salaries.

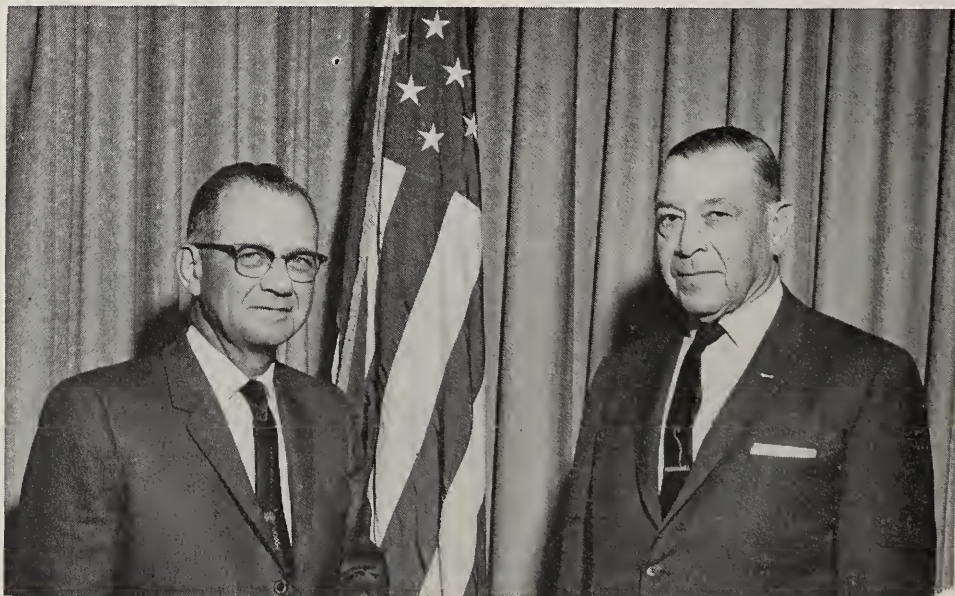
The duck industry on Long Island is

a healthy, thriving farm industry—but it wasn't always this way.

In 1960 prices hit a striking low, averaging below production costs. Millions of pounds of duckling were in storage, needing a sales outlet. Long Island farmers almost without exception lost money on 1959 sales and at the beginning of the 1960 season faced serious financial difficulties.

Some of the problems of the Long Island industry were: (1) Most duck production is during the summer, while peak sales months are in the winter. (2) Although Long Island raised 75 percent of the Nation's ducklings, other areas benefited from the Long Island in-

Spence G. Duncan (right), Director of Division of Markets of the N.Y. Dept. of Agriculture and Markets, is shown after he received USDA's coveted "Superior Service Unit Award" from Administrator S. R. Smith of AMS. The award went to N.Y.'s Farm Products Promotion Section for its promotion work.



dustry's promotion and prices. (3) Lack of organization plagued the industry with irregular bidding and advertising.

In May 1960 the Long Island Duck Farmers Cooperative, Inc., was formed by 44 duck farmers, to present a unified promotion and marketing program. Members included nearly all of Long Island's duck farmers and the cooperative set about to solve some of the industry's problems.

After a few months, it appeared that the cooperative had been formed too late. With 5,670,000 pounds of duckling in storage by the cooperative, its leaders realized that they must somehow sell more ducklings per week for an entire season than had even been sold in a single week in the history of the Long Island industry.

At this time, the Long Island farmers sought the assistance of the New York Department of Agriculture and Markets. The project was approved for Matching Fund support from USDA's Agricultural Marketing Service, and a full-scale promotion campaign was launched.

In two months, with the help of the New York department, more than four million pounds of duckling was marketed!

But this was only the start. The promotion was put on a year-round basis, to obviate the need for similar "crisis" campaigns.

The New York promotion unit then conducted a complete "Marketing Survey" which allowed marketers to know exactly what the markets for duckling

were, who bought them, when they were bought and how far they were shipped. This survey showed dramatically that the Long Island Duckling was sold nationally—and that any successful promotion campaign must be carried out on a national, rather than a regional, basis.

Among other marketing improvement activities:

The New York department helped develop a marketing program around the distinctive "Genuine Long Island Duckling" seal to identify the product at the retail level and to serve as a focal point in national promotion.

The industry started marketing "cut-up" ready-to-cook duckling in frozen form for "instant" frying and barbecuing. An industry-financed promotion program on this was also carried out with the help of the New York Department of Agriculture and Markets.

All ducklings coming from the Long Island Duck Farmers Cooperative are inspected for wholesomeness by USDA's Agricultural Marketing Service, and graded for quality under a Federal-State program. This assures the consumer of high quality poultry when she buys the cooperative's product.

Another Federal support to this project was also provided by AMS, through its Plentiful Foods Program. When stocks of duckling were at their peak, the Department placed ducklings on its Plentiful Foods List and informed food editors of the availability of frozen ducklings. This program is designed to help farmers by enlisting the know-how

of marketers and at the same time letting the public know what foods are in large supply—thereby providing a demand to match the market.

All in all, the Long Island duckling program has been—and still is—an outstanding example of Federal-State industry cooperation.

The industry itself took the initial step—by organizing for marketing and promotion, and by enlisting the aid of Federal-State marketing officials.

The New York Department of Agriculture and Markets played a major role of improving the marketing conditions through promotion, advertising, research and counseling.

And the U. S. Department of Agriculture, through its Agricultural Marketing Service, contributed in three ways: by making available Federal inspection and Federal-State grading services, through its Plentiful Foods Program, and through the Matching Fund marketing service program, which provided part of the funds used by the State Department of agriculture.

This latter activity, the Matching Fund Program is a self-help marketing improvement program, in which State funds are matched by Federal funds for programs in quality improvement, market development, marketing efficiency and information.

These individual programs, which supplement and complement national marketing service programs, form vital machinery for the channeling and marketing of agricultural products.

Marketing arrangements under the Matching Fund Program are in effect with 43 States and run the entire gamut of agricultural products in our Nation today, dealing with such varied subjects as Alaskan reindeer, Kona coffee in Hawaii, ginseng roots in West Virginia and, of course, ducklings in New York.

Work under these projects is often slow and painstaking—and those who work to improve marketing often have no way of showing their successes—and seldom are recognized for their contributions to agriculture.

But the New York State Department of Agriculture unit which made possible this Long Island Duckling Story has received the coveted "Superior Service Unit Award" earlier this year from the U. S. Department of Agriculture, the first State unit to receive this Federal award.

(The author is Director, Matching Fund Program, AMS, USDA, Washington D.C.)

The marketing of these ducklings is an outstanding example of Federal-State-industry cooperation. Faced with financial difficulties, Long Island duck farmers formed a coop for uniform marketing and promotion and received considerable help from the N.Y. Department of Agriculture and Markets and from AMS.



How Organized Marketing Can Improve Grower Returns

By Lew Ray

IF TEN consumers were to read the title of this presentation, eight of them would say, "Why do we want to improve grower returns? We go into a grocery store today and come out with one small sack of groceries that cost almost ten dollars."

If this word "groceries" were analyzed a little for the benefit of the public, the consumer might better understand her food bill.

The consumer doesn't stop to realize that the bottle of special shampoo and the jar of "Wave Set" that makes you glamorous in spite of yourself, is included in the grocery bill. Neither does she consider the hundreds of other items that are included in her grocery bill.

If the consumer could only look at her grocery bill as far as food alone is concerned, and see what a really good value food is in terms of her purchasing power, she would be the first one to say that the farmer is entitled to a living wage.

When we see the most efficient producer in the world gradually paying a little more for what he buys while his products are netting him a little less each year, we know we need to do something about the problem.

If we win this battle for the farmer, we must do it through more efficient marketing. This efficiency must begin with production and extend through all the marketing channels.

Our farmers must grow the varieties that are wanted; they must space their plantings so that they will have product for a longer period of time; they must harvest it at the right maturity, pack it as the merchandiser wants it, and get it delivered while the product is at its best.

Only through organization can our grocers do these things. We think there are only two or three avenues open for farmers to organize effectively. These are marketing orders, co-operatives, and bargaining associations.

While marketing orders are very effective in many areas, such as quality control, volume control, pack and package control, and while they furnish the vehicle for collection of funds for mar-

keting research and development, they are lacking in one major area. They don't get the product sold.

We believe a co-operative with a very rigid marketing contract is the best single self-help tool available today for marketing most farm products.

As an example of what we are doing with co-ops, I would like to tell you a little about one we helped organize in northern Colorado in 1960.

Prior to 1960, a group of owners, mostly Japanese, around Ault, Colorado, grew onions each year—usually better-than-average onions.

These young farmers are very intelligent, college trained men. They were intelligent enough to study price reports from receiving areas. They saw the tremendous spread between what they were getting and the wholesale price at these terminal markets. They finally decided that if they were going to stay in the onion business they had to do something.

At our first meeting with them, after they had heard our story, we knew that they meant business. Onion Growers, Inc., was formally launched in June 1960.

Their articles called for a \$1,000 investment for membership. Fifteen members were signed up during the organizing period. They are a two-way co-op. They are organized to market their members' products and purchase farm supplies for their members.

After they were organized, they arranged to purchase a warehouse which could be used for packing and sorting, as well as provide some storage space. They have since added another larger warehouse at Lucerne, Colorado, about twelve miles south, which more than doubled their storage capacity.

The officers then hired a good manager who knew and believed in the co-op principle.

They arranged for a potato marketing organization with extensive trade territory, the Colorado Potato Growers Exchange, to serve as their marketing agent. The marketing agency also underwrote the loans the co-op needed to buy grading machinery and other facilities. All onions are marketed through

this one agency.

The co-op has a very tight marketing contract. All onions must be sold through the co-op. A penalty of \$1.00 per hundredweight is assessed against the producer if he sells onions elsewhere. . .

This organization is able to furnish its customers top-grade onions from late September to mid-March. This kind of arrangement is what it takes to hold customers.

Each grower must deliver his onions to the co-op when they are needed. The members are paid an advance payment on the onions delivered and, at the end of the season, each grower gets the same price for the same quality, no matter when his onions were sold.

Ten cents per hundredweight is retained by the co-op on all onions sold and goes into preferred stock. The money is used to retire the indebtedness of the Association.

While onions are not one of the crops in Colorado under compulsory inspection, this group believes that official inspection is a must, not only as a basis for paying its members but because, more important, it guarantees uniform quality for the buyer. So, every sack of onions is inspected and graded by the Federal-State Inspection Service.

All onions are packed under their own labels. By packing a top quality product, the Association has built an enviable reputation for its onions and is marketing them in 15 States.

We believe the record proves the success of this organized marketing venture. . .

This gives you a rough idea of what one small organized group is doing in Colorado. The members are loyal, they are satisfied that they have a good organization. We think they are doing a good job.

We have many other co-ops in Colorado, some good, and some not so good. The "not-so-good" ones are the ones whose members have very little loyalty to their co-op—usually a very small membership fee, usually no penalty for selling their product outside of their organization. These are the co-ops that need to take a good look at their organizational structure.

(The above remarks are excerpts from a speech made by the author at the 1963 National Marketing Service Workshop in Kansas City, Kansas. Mr. Ray is Chief, Division of Markets, Colorado Department of Agriculture.)

Stamps Increase Food Sales

RETAIL food sales in Avoyelles Parish, Louisiana, rose 7 percent after the Pilot Food Stamp Program was introduced into that community, according to a study based on representative sampling of sales in 73 retail food stores in that Parish. The study was conducted by the Economic Research Service of the U.S. Department of Agriculture.

Total sales increased by 14 percent but half was due to such seasonally-increased activities as greater employment, greater income, and greater purchases during the June-July 1963 study period than six months earlier. The remaining 7 percent was due to the program.

Among three leading food groups, meat sales racked up the largest gain, 25 percent, following the Food Stamp Program's introduction. Grocery sales gained 12 percent. Retail food store produce sales dipped 10 percent though mainly because fresh produce was readily available elsewhere, including home gardens, during the 4-week period of the study. These percentages do not reflect seasonal influences.

The food coupons encouraged participants in the program to purchase more food rather than to substitute the coupons for normal food purchases. Generally, it was found that participants continued to shop in the same stores, and retail stores in all size categories felt the impact of the Food Stamp Program and shared in the increased purchasing power it created following its inauguration.

The Food Stamp Program is administered by USDA's Agricultural Marketing Service, with State welfare and local government agencies certifying the eligibility of applicants, and issuing coupons. Low-income families certified as in need of food assistance buy



Here are the food coupons spent in retail food stores, just like cash, by some 380,000 low-income persons certified as in need of food assistance.

food coupons in amounts that reflect their normal level of food expenditure, based on size of family and income. They receive coupons of greater monetary value to improve the level of their diets, and the coupons are spent like cash at local retail food stores authorized to redeem the coupons.

Except for a few imported items, any food may be bought with these coupons. In turn, retailers redeem the coupons at face value with authorized wholesalers or at their local bank. Banks, in turn, redeem the coupons through Federal Reserve Banks which are then reimbursed from a special account maintained in the U.S. Treasury.

Secretary of Agriculture Orville L. Freeman recently noted, after three years of Food Stamp Plan activity across the Nation, that the experimen-

tal programs are now operating in 43 rural and urban areas in 22 States, with some 380,000 persons participating. During this time, the Secretary pointed out, food stamp activity has produced more than \$56 million in new spending power in the form of Federal food coupons flowing into the local economy of the counties and cities participating in the program. At the same time, families benefiting from this program have put up over \$91 million of their own cash in order to obtain extra food buying power.

Single copies of the latest retail study, "Pilot Food Stamp Program — Impact on Retail Food Store Sales in Avoyelles Parish, Louisiana," AER55, may be obtained from the Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250.

OFFICIAL BUSINESS

The Federal Seed Act at Quarter-Century Mark

By S. F. Rollin

U. S. FARMERS are getting better seed than they did a quarter century ago.

In 1939 when Congress enacted the present Federal Seed Act, about 25 percent of the seed shipped from one State to another could not meet the Act's requirements.

After 25 years of enforcement and educational work by the Agricultural Marketing Service of the U.S. Department of Agriculture and cooperating agencies in each of the States, only 9 percent of the seed shipped interstate falls below legal requirements. Moreover, these violations are generally much less serious than those of a quarter-century ago.

Nearly half of the agricultural and vegetable seed sold moves across State lines and so is subject to the Federal Seed Act.

How does the Act work? Here's an actual example:

A farmer in southwestern Kansas buys several hundred-pound bags of sorghum seed and plants it in his field. The sorghum comes up, but to his surprise and dismay, so does an unwanted large number of plants of the noxious-weed, johnsongrass.

The field was "clean"—virtually free of weeds. The bags of sorghum seed were labeled to contain no noxious-weed seeds. The question in the farmer's mind, "How did it happen?"

He takes this question to the local county agricultural agent, who then checks with other farmers in the area and learns that six of them have just had the same problem with seed purchased from the same source, under the same brand.

A State seed inspector is called who examines the fields, gets labels from the bags, and draw samples of the unplanted seeds for testing in the State seed laboratory.

Sure enough, seeds of johnsongrass

are found in the sorghum seed.

The State inspector sends a sample to the nearest Federal Seed Laboratory for examination too, since the seed was shipped from another State into Kansas and is therefore subject to the Federal Seed Act.

As a result, the shipper of the seed is prosecuted under the Federal Seed Act for false labeling. In addition, armed with the evidence from the tests made on the seed, the farmers are able to sue the shipper and collect for damages.

Fortunately, such an instance has become the exception to the rule because of the increasing extent of seed-buying protection given farmers, home-gardeners, and other users of seed. The protection comes from seed laws administered by each of the 50 States and from the Federal Seed Act, administered by the USDA's Agricultural Marketing Service with cooperation from each State.

Sampling of seed offered for sale, with subsequent testing in the laboratory, is becoming more and more geared to detecting low quality, falsely labeled seed before it can be sold and planted. The result has been a decrease of instances like the one in which seven farmers bought and planted seed which infested their fields with harmful weeds.

Testing of seed in the laboratory—to make sure it's labeled correctly or that it meets certain required quality standards—is still an art. But it's becoming more of a science as more specialized and more reliable tests are continually demanded. New testing techniques and new developments in testing equipment, such as growth chambers, germinators, and special lighting devices, are increasing the extent of protection given seed buyers and making it possible to adapt testing work to new developments such as treated seed and hybrid seed.

Today, about 90 percent of the sorghum is produced from hybrid seed. AMS seed specialists have devised a

method for observing root habit, shoot growth, and coloring of the coleoptile, or sheathing that covers the first leaf of the plant. These characteristics are measured under special light and germination conditions and help to identify varieties of sorghum in field plantings.

AMS seed specialists also recently standardized a procedure for determining whether ryegrass seed is of the annual or perennial type, by noting whether it glows in the dark under a special light.

A "bio-assay method" is now being used by AMS and some State seed agencies to determine whether seed has been treated with a fungicide. The test is made by placing the seeds on a nutrient-soaked gelatin medium or blotter, to which fungi spores have been added. If the seed has been treated, a clear area containing no fungus growth will remain around each seed after 24 to 48 hours.

If not, the fungi will grow throughout the medium, indicating no treatment of the seed.

In testing seeds for variety, growth chambers are now making it possible to duplicate any type of weather, in any part of the country. The chambers supplement field growing, an expensive, time-consuming testing method used to determine whether seed is of the variety stated on the label. The growth-chamber method can offer long days, short days, and variations in temperature and humidity, as needed. Alfalfa, for instance, using 16-hour daylight in the chamber, can be grown to bloom in five weeks, while in the field about a year would be required.

These are a few examples of how faster, more efficient, and more reliable methods of testing seed—in Federal and State seed laboratories—are offering the seed buyer greater protection than ever before.

(The author is Chief of the Seed Branch, Grain Division, AMS, USDA.)